

## Claims

1. Computer-aided method for recording and billing of services during roaming of a mobile IP node (20) in heterogeneous WLANs, the mobile IP node (20) accessing an access point (21/22) of a WLAN within a basic service area of a WLAN via a wireless interface, the basic service area of the WLAN including one or more access points (21/22) assigned to an access server (23/1001), at which the mobile IP node (20), upon request of the access server (23/1001), transmits to the access server (23/1001) an IMSI stored on a SIM card (201) of the mobile IP node (20), and the IMSI of the IP node (20) is stored in a database (31) of an SIM-RADIUS module (30), characterized

in that by means of an SIM user database (34) and an SIM gateway module (32), an SIM-RADIUS module (30) supplements user-specifically the logical IP data channel of the WLAN toward corresponding GSM data for signal and data channels of a GSM network, the authentication and/or service authorization of the mobile IP node (20) being carried out at an HLR (37) and/or VLR (37) of a GSM network, based on the IMSI of the SIM card (201) of the mobile node (20),

in that by means of a billing gateway interface a billing module (1003) accesses the access server (23/1001), first call detail records of the mobile IP node (20) being transmitted (1011) from the access server (23/1001) to the billing module (1003), and the billing gateway interface (1031) including an assigned billing management database (1032) with the configuration profile of each access server (23/1001),

in that second call detail records of the mobile IP node (20) are transmitted to a proxy module (1002), which proxy module (1002) captures at least the identity of the mobile IP node (20) and/or duration and/or provider of the obtained service and passes it on (1012) to the billing module (1003), and

in that the billing module (1003) generates TAP files (1014) corresponding to the obtained service, based on the data of the proxy module (1002) and the first call detail records (1011), and transmits these together with

billing instructions (1013) to a clearing module (1004), the billing instructions (1013) including at least user-specific and/or service-provider-specific billing data, and the clearing module (1004) billing (1016) the service obtained by the user (1008) to a provider (1008) of a fixed network (1007) and/or transmitting  
5 the TAP files (1017) to a GSM (1005) service provider (1006) for billing.

2. Computer-aided method according to claim 1, characterized in that a first call detail record is created based at least on the IP address of the mobile IP node (20) and identifications of the service provider whose service was obtained by the mobile node.

10 3. Computer-aided method according to one of the claims 1 or 2, characterized in that the data stream of the mobile node (20) when accessing the WLAN from the access point (21/22) is directed via a mobile radio network service provider.

15 4. Computer-aided method according to one of the claims 1 to 3, characterized in that the TAP files (1014) are created based at least on Inter Operator Tariffs and Public Mobile Network TAP identification codes.

5. Computer-aided method according to one of the claims 1 to 4, characterized in that the billing management database (1032) includes IP addresses and/or GSM identification of the users and/or service providers.

20 6. Computer-aided method according to one of the claims 1 to 5, characterized in that the billing management database (1032) includes Inter Operator Tariffs and Public Mobile Network TAP identification codes.

25 7. Computer-aided method according to one of the claims 1 to 6, characterized in that the second <sic. first> SIM-based call detail records of the mobile IP node (20) are transmitted (1010/1011) from the access server (23/1001) to the billing module (1003) and the first <sic. second> IP-based call detail records from the access server (23/1001) to the proxy module (1002).

8. System for recording and billing services during roaming of a mobile IP node (20) in heterogeneous WLANs, which system includes at least one WLAN with a basic service area in each case, which basic service area of a WLAN includes one or more access points (21/22) assigned to an access  
 5 server (23/1001), which access points (21/22) include a wireless interface (211) for communication with mobile IP nodes (20), and which mobile IP nodes (20) include a SIM card (201) for storing an IMSI, characterized

in that the access server (23/1001) <includes> a SIM-RADIUS module (30), an SIM user database (34) and an SIM gateway module (32) for  
 10 user-specific supplementation of the logical IP data channel of the WLAN toward corresponding GSM data for signal and data channels of a GSM network, the authentication and/or service authorization of the mobile IP node (20) being carried out at an HLR (37) and/or VLR (37) of a GSM network, based on the IMSI of the SIM card (201) of the mobile node (20),

15 in that the access server (23/1001) includes a billing module (1003) with a billing gateway interface (1031) for access to access servers (23/1001), first call detail records of the mobile IP node (20) being transmittable (1011) from the access server to the billing module (1003), and the billing gateway interface (1031) including an assigned billing management database (1032)  
 20 with the configurations of the individual access servers (23/1001),

in that by means of a proxy module (1002) second call detail records of the mobile IP node (20) are downloadable (1010) from the access server (1001), by means of the proxy module (1002) at least the identity of the mobile IP node (20), duration and provider of the obtained service being able to be  
 25 captured and able to be passed on (1012) to the billing module (1003),

in that by means of the billing module (1003) TAP files (1014) corresponding to the obtained service are able to be generated, and these are transmittable, together with billing instructions (1013), to a clearing module (1004), the billing instructions (1013) including at least user-specific and/or  
 30 service-provider-specific billing data.

9. System according to claim 8, characterized in that by means of the access server (23/1001) second call detail records are able to be created based at least on the IP address of the mobile IP node (20) and identifications of the service providers whose service was obtained by the mobile node.

5           10. System according to one of the claims 8 or 9, characterized in that the data stream of the mobile IP node (20) during access to the WLAN from the access point (21/22) is directed via a mobile radio network service provider.

10           11. System according to one of the claims 8 to 10, characterized in that the TAP files (1014) include at least information relating to Inter Operator Tariffs and Public Mobile Network TAP identification codes.

12. System according to one of the claims 8 to 11, characterized in that the billing management database (1032) includes IP addresses and/or GSM identification of the users and/or service providers.

15           13. System according to one of the claims 8 to 12, characterized in that the billing management database (1032) includes Inter Operator Tariffs and Public Mobile Network TAP identification codes.

20           14. System according to one of the claims 8 to 13, characterized in that the first SIM-based call detail records of the mobile IP node (20) are transmitted (1010/1011) from the access server (23/1001) to the billing module (1003), and the second IP-based call detail records from the access server (23/1001) to the proxy module (1002).